

## **Historic, Archive Document**

Do not assume content reflects current scientific knowledge, policies, or practices.



NOV 10 1906

Vol. XIII.

OCTOBER, 1906.

No. 1.

U. S. Department of Agriculture

# THE AGRICULTURAL STUDENT



A Factor in Agricultural Progress.....J. A. FORD

Dealings in Futures on the Produce Exchange

H. C. RAMSOWER

Country Butter.....

W. L. CLEVINGER

LIBRARY  
U. S. DEPARTMENT

5¢  
PER  
COPY

A  
MONTHLY MAGAZINE  
DEVOTED TO  
AGRICULTURAL  
EDUCATION

50¢  
PER  
YEAR

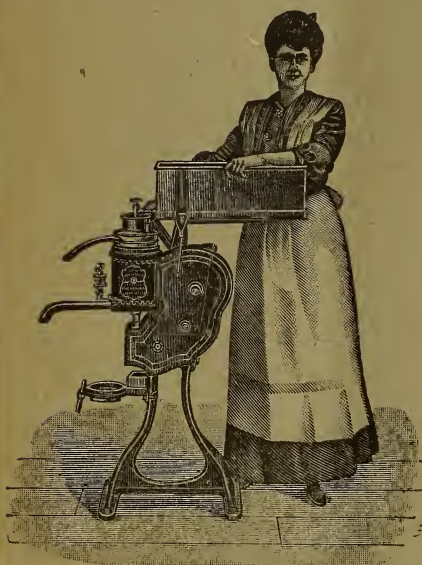


# The Construction and Operation

of a machine like the centrifugal cream separator cannot be intelligently explained in so small a space as this page. There's hardly more than enough room to make the briefest claims, yet claims without substantial reasons rarely convince any man. But for every claim made for the Improved

## U. S. CREAM SEPARATOR

you'll find adequate reasons in our new catalogue, No. 9, which is entirely devoted to a COMPLETE explanation as to why the United States



Skims Cleanest  
Wears Longest  
Runs Easy  
Is Simple  
Quickly Cleaned  
Perfectly Safe  
Most Profitable

The detailed descriptions are supplemented by many fine engravings from photographs of the different parts. When you get through reading this catalogue, you'll KNOW all about the United States Separator, and if you are keeping cows for profit, it'll PAY YOU TO KNOW. Whether you need a separator now, or a little later, get this book, and SEE FOR YOURSELF why the United States has advantages that no other separator has. Just say: "Send new catalogue No. 9" and we shall be glad to forward it promptly.

## Vermont Farm Machine Co.

BELLOWS FALLS, VERMONT

Eighteen Distributing Warehouses - - Prompt Deliveries

THE AGRICULTURAL STUDENT

# The Ohio Creamery and Dairy Supply Co.

## CREAMERY BUILDERS

Dairy, Creamery and Milkmen's Supplies  
Ice Cream, Confectioners' and Bakers' Machinery

Ask us for Prices Before Placing Your Order

AUTOMATIC PHONE 9560

298 East Long Street, Columbus, Ohio

FRANK C. KELTON.

WADE CONVERSE

**Kelton & Converse,**

Dealers in

**Lumber, Lath, Shingles,**

Doors, Sash, Blinds,

Door and Window Frames,

Mouldings, Etc.

Cor. Spring and Water Sts.

COLUMBUS, O.

Telephone No. 2279.

**BLACKWOOD,  
GREEN & CO.**

**HARDWARE**

**STOVES AND HOUSE  
FURNISHING GOODS.**

**SLATE and METAL ROOFING**

624 North High Street,  
Columbus, Ohio.

STUDENTS will receive a cordial welcome at KILER'S. Headquarters for everything needed by the STUDENT.

Cor. Eighth Ave.

**Kiler's Pharmacy**

1441 N. High St.

When writing to Advertisers, mention THE STUDENT.

# Clay, Robinson & Co.

## Live Stock Commission

Chicago  
Denver

South Omaha  
So. St. Joseph

Kansas City  
Sioux City

So. St. Paul  
East Buffalo

The best of men and methods in each department at all houses.

YOU ARE INVITED TO VISIT

## BAKER ART GALLERY

STATE AND HIGH STS.

# For the FINEST Photos

The only Gold Medal awarded an American Photographer  
at the Paris Exposition

Special Rates to Students

# America's Leading Horse Importers

At the Great Central Show held in Paris, June 13-17, 1906,  
our Percheron Stallions won as follows:

- 4 YEAR OLDS—FIRST FAISAN
- 3 YEAR OLDS—FIRST VALORY
- 2 YEAR OLDS—FIRST GUERIDON

At the Percheron Show held under the auspices of the So-  
ciete Hippique Percheronne de France, our  
horses won as follows:

- 4 YEAR OLDS—FIRST BIBI
- 3 YEAR OLDS—FIRST DIMITRI
- 2 YEAR OLDS—FIRST GUERIDON

## McLAUGHLIN BROS.

COLUMBUS, O.

KANSAS CITY, MO.

ST. PAUL, MINN.

If you saw it in THE STUDENT, tell the advertiser so.



SEASON OF 1906 - 1907

# Prof. W. J. Rader's

## ACADEMIES OF DANCING



### Neil Avenue Academy

647 Neil Avenue. Phones—Automatic 4431, Bell 6189.

Will organize a beginner's class Friday evening, October 5th.

### High Street Academy

199½ South High Street. Automatic Phone 3456

Will organize a beginner's class Saturday evening, October 13th.

#### TUITION

Gentlemen, per term of 10 lessons.....	\$5 00
Ladies, per term of 10 lessons .....	3 00

Tuition can be paid \$1.00 per week until paid.

### Oak Street Academy

827 Oak Street

Academies can be secured for fraternity hops or any social affairs.

THE AGRICULTURAL STUDENT

# OHIO STATE UNIVERSITY COLUMBUS, OHIO

## Six Colleges:

### AGRICULTURE AND DOMESTIC SCIENCE

Homer C. Price, M. S., Dean

### ARTS, PHILOSOPHY AND SCIENCE

Joseph V. Denney, A. B., Dean

### ENGINEERING

Edward Orton, Jr., E. M., Dean

### LAW

Joseph H. Outhwaite

### PHARMACY

George B. Kauffman, B. Sc., Dean

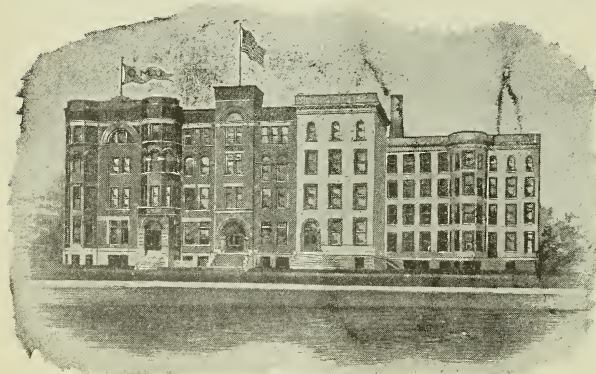
### VETERINARY MEDICINE

David S. White, D. V. M., Dean

**WILLIAM OXLEY THOMPSON, LL. D., D. D., President.**

---

## Ohio Medical University.



Colleges of **MEDICINE, DENTISTRY**  
and **PHARMACY.**

Four years' graded course  
in Medicine, three in Dent-  
istry and two in Pharmacy.  
Annual sessions thirty-four  
weeks.

**All Instruction except Clinical, by  
the Recitation Plan.**

Students are graded on their daily recitations, term and final examinations. Large class rooms designed for the recitation system. Laboratories are large, well lighted and equipped with practical, modern apparatus. Abundant clinical facilities in both Medical and Dental departments.

**Sessions for 1906-1907, in all Colleges, begins Tuesday, September 11th, 1906.**

For catalogue and other information address:

**GEO. M. WATERS, M. D., Dean,**  
College of Medicine.

**H. M. SEMANS, D. D. S., Dean,**  
College of Dentistry.

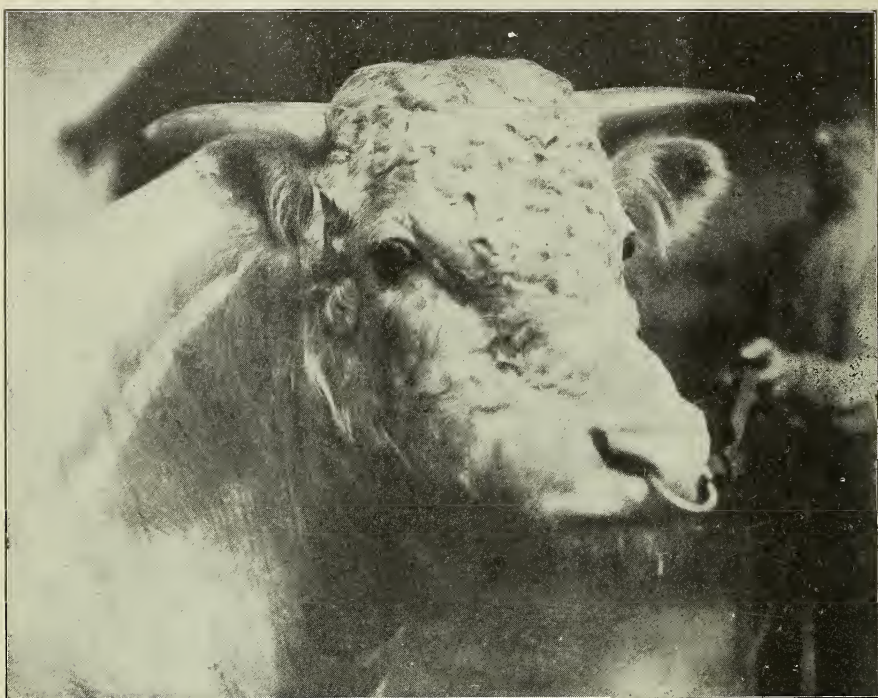
**GEO. H. MATSON, G. PH., Dean,**  
College of Pharmacy.

**Ohio Medical University**

**700-714 N. PARK ST.,  
COLUMBUS, - OHIO.**







MISSIE'S DIAMOND

1st Prize 4 Year Old Short Horn Bull at Ohio State Fair 1906

(See Page 23)

# THE AGRICULTURAL STUDENT.

VOL. XIII. OHIO STATE UNIVERSITY, COLUMBUS, OCTOBER, 1906 No. 1

### TERMS OF SUBSCRIPTION:

One Year.....	\$0.50
One-half Year.....	.30
Single Copies.....	.05

While this magazine is published with the approval of the President of the University and the Officers of the College of Agriculture and Domestic Science, the editors are responsible for the statements in all unsigned articles.

Address all communications to the Business Manager, Agricultural Student, Columbus, Ohio.

Entered at the Post-Office, Columbus, Ohio, as second-class matter.

### PUBLISHED MONTHLY BY

## THE AGRICULTURAL STUDENT PUBLISHING COMPANY.

E. J. KITCHEN .....	Editor
.....	Advisory Editor
J. C. WHITE.....	Business Manager

### STAFF.

W. L. Slate	Joseph Gourley
E. Kinney	S. B. Stow
F. D. Heckathorn	J. G. McBeth

### EDITORIAL COMMENT

School opened with usual merry greetings of last years students, and the forming of new acquaintainships with the Freshmen. The Seniors will especially notice how much more anxious they are to return to Townshend Hall and talk over their vacation experiences than they had been in former years.

Although the Agricultural College has not enrolled as many students as it did last year at this time, more students have entered from out of the state and more enlisted in the four-year course than before. Furthermore, the total enrolment in the University has exceeded 2300.

We refrain from giving much advice to the average Freshman, taking it for granted that he will avail himself of the opportunities of getting valuable information from President Thompson's convocation addresses, yet we feel that some of the newcomers may neglect these 10 o'clock programs on Wednesdays, expecting to gain pointers by reading the columns in the Agricultural Student; therefore with no hesitancy we state, "a word to the wise is sufficient." We think that all are here to learn as

## CONTENTS

Editorial Comment .....	3
College News .....	4
Alumni Notes .....	5
Some Clover Observations .....	7
A Factor in Agricultural Progress .....	8
Lime as a Fertilizer .....	10
The Morgan Horse .....	12
Experimental Research .....	12
Dealing in Futures on Produce Exchanges .....	14
Country Butter .....	19
Horticultural and Forestry Club .....	21
Townshend Reception .....	21
Foot Ball Gossip .....	21
Prizes Offered at the International .....	22
Book Reviews .....	24



much as they can. Some learn more of those things that may not be of paramount importance in after life, while others grasp those affairs of life that count as corner stones for good citizens. Learning is what we want, moreover the right kind. We don't say you must be a "stick," a book worm, and not be a mixer and a man that will train yourself to be a man among men, capable of presenting yourself to the world in a straight-forward business manner, that will secure success, but don't neglect the chief essential, good consistent work in the study and classroom. Don't let any previous success nor family standing make you too self-confident, but stand corrected when you are wrong, and profit by others' mistakes as well as your own. "Learning by study must be won, 'Twas never entailed from sire to son."

If the professors haven't the time to give you the advice wanted, consult a Senior. For further information read of the next issue of the AGRICULTURAL STUDENT.

The Agricultural College will receive a large number of new students entering the ten-weeks' course offered in the winter term. This is a new move, and is expected to be of great good to those who cannot see their way clear to come for the two or four years course.

#### College News

David M. Fyffe has been appointed superintendent of the live stock at O. S. U. Mr. Fyffe comes from Ft. Wayne, Indiana, where he had in charge for some years the Spring Grove Short Horn Cattle Farm and was also connected with the Brookside Farm, breeders of Clydsdale horses and Galloway cattle. He was formerly in charge of Frank Rockefeller's Hereford ranch in Kansas.

"Uncle Davy" is a scotchman, being familiar with the methods of the show-

ring, and well known among the leading live stock exhibitors of the county. He will no doubt be a great aid to the Animal Husbandry Department.

The University recently purchased of Frank Harding, of Waukesha, Wis., an imported yearling Cottswold ram. Out of the ten rams, including two show sheep, bought from England this summer, Mr. Harding regards this one third best.

The University has purchased of D. R. Hanna, of Ravenna, O., for December delivery, the short horn bull calf Diamond's Pride, sired by Bapton Plate, one of the great bulls of the British Isles. Mr. Hanna paid \$5000 for the sire of this calf in Scotland, being regarded as one of the greatest show bulls of recent years. Diamond's Pride is being exhibited this season by Mr. Hanna with his herd, and with the calf class. At the Ohio State fair he was first prize winner.

Mr. W. A. Martin, who graduated in the class of 1905, made a short visit with friends of the University, on his way to Morgan county fair, where he judged stock.

Professor Rudolf Hirsch, former professor in Agricultural Chemistry at O. S. U., was in Columbus with his new bride, formerly Miss Martin, director of the girls gym. class at O. S. U. Mr. and Mrs. Hirsch were making a short visit in Columbus. They departed for Kansas City where Mr. Hirsch will act as chief chemist for one of the largest wholesale grocery houses in the West. This feature of inspecting all groceries bought and sold is a new thing and may be adopted by other firms in the near future. Students going out from

the Agricultural College may find opportunities for good positions in this line of work.

Plans for the proposed cattle barn at O. S. U. have been completed. Geo. S. Mills, architect from Toledo, was the successful bidder. These plans will now be submitted to the Board of Trustees for their approval. The building is to be made of red brick, with a red tile roof. The cost of the building is estimated at twenty-five or thirty thousand dollars.

Plans are also being made for the live stock pavillion and the horse barn. The landscape gardener, Mr. Olmstead, of Brookline, Mass., will arrange the grouping of these buildings similar to the other buildings on the campus.

The Western Reserve O. S. U. Association held its fifth annual reunion, Saturday, August 18, at Chippewa Lake, Medina county. Of the more than thirty present not one but who seemed to feel repaid for attending. Among those who responded to the call for short speeches, after the good picnic dinner, were Messrs. Waid, Goddard and Carmichael, of Wooster, and A. G. Abbott, of Wadsworth. The idea of making the Association a power for mutual help, and also a help to the University and Experiment Station was impressed upon us. Carl B. Abbott, Chippewa Lake, was elected president, E. W. Nettleton, Medina, secretary, and O. A. Nichols, Medina, to be on the executive committee.

The fellowship in Animal Husbandry was abolished this year and an assistantship established instead. W. H. Palmer, B. Sc. (Agr.) '05, has been chosen to fill that position.

John F. Lyman, Assistant in Agricultural Chemistry last year, has this year entered Yale to take advanced work in chemistry.

Alex. Argo, former feeder at the University farm, has been employed by W. I. Wood, of Woodland Stock Farm, Williamsport, O.

John Chrisholm, '06, of Guelph, Ontario, is now superintendent of the University farm.

#### Alumni Notes

Dwight W. Weist, B. Sc. (Agr.) '05, has given up his position as General Secretary of the University Y. M. C. A. at Ada, O., and accepted a more lucrative position with the Y. M. C. A. of the University of Illinois.

Clifford C. Hatfield, B. Sc. (Agr.) '04, resigned his position as Secretary of the O. S. U. Y. M. C. A. last June and has since been employed as State Secretary of the county Y. M. C. A. work, his duties being to take up the organization of the Y. M. C. A. in the various counties of the state.

Vincent Phelps, ex-'08, has entered Cornell University this year.

W. H. Dilatush, ex-'08, is employed in general farming near Lebanon, O.

W. C. O'Kane, '96, O. S. U., who has been employed in the advertising department of the Dispatch, is now in the Agricultural College working for a master's degree.

J. B. Parker, '98, O. S. U., former teacher in a Cleveland high school, has entered the Agriculture College.

T. L. Wheeler, B. Sc. (Agr.) '05, and family recently visited in Columbus. Mr. Wheeler is employed as Agricultural Editor of the Chicago Daily Drovers' Journal.

*T. W. Payne*  
T. W. Payne, '91, has resigned the position as professor in Horticulture and Forestry at New Hampshire State College, to accept the position of State Forester of Massachusetts.

A. H. Snyder, or, has been soil expert in the Bureau of Soils. He is now in the Department of Agricultural extension work of Iowa State College.

C. K. McClellan, '98, who was formerly Associate Professor in the North Carolina Agricultural College, has accepted a position in the Department of Agriculture, Washington, D. C.

C. W. Burkett, '95, B. Sc. (Agr.), the first editor of the Student, has resigned a professorship in the North Carolina College. He was appointed to take charge of the winter course in the Agricultural College at O. S. U. but soon resigned that position to take Directorship of the Kansas Agricultural Experiment Station.

#### Class of 1906.

N. E. Shaw, who lately wedded Miss Irene Snyder, '07, Domestic Science, is now working with Mr. Burgess in the orchard inspection. Mr. Shaw owns a truck farm east of Columbus, which he will operate in the near future.

F. L. Allen is superintendent of his father's farm near Van Wert, O.

E. L. Bowser is located near Youngstown, O., with Mr. Minns, overseeing a dairy.

C. D. Hyatt, editor of the Student during the preceeding year, is now located in Western Kansas, superintendent of a large grain farm.

L. E. Call and H. C. Ramsower are assistants in Agricultural Chemistry of O. S. U. They are working out their master's degrees.

"Ike" Cook, captain of O. S. U. track team of 1906, is at home on the farm near Chillicothe, O.

R. C. Donehue is now employed in the soil survey work in Illinois under Professor Hopkins.

Wm. Evans, who was married last spring, is now connected with the canning factory at Chillicothe.

"Tommy" Foster is on a farm near Lebanon, O.

J. W. Hammond is with Professor Mumford of U. of Illinois, doing special office work.

Wm. Clevenger is taking post-graduate work in the College of Agriculture and is also working in the Dairy Department.

Susan Hoover is teaching in the Deaf and Dumb Institution.

Marcelli Mackie is teaching in Dayton, O.

Florence Hutchinson is a teacher in St. Mary's, O.

J. A. Main is farming at his home in Union county. He was called upon to judge horses at the Wood county fair.



J. E. McClintock and Margaret Weinstein were married at Summerfield, O., on September 26, 1906. Mr. McClintock is in the Bureau of Soils at Washington, D. C.

---

George Snyder is running his father's farm at Norwalk, O.

---

Bessie Shilling is enrolled in the Arts College at O. S. U. In the afternoons she teaches German at Worthington.

---

R. C. E. Wallace is doing clerical work in the office of Director Thorn at the Experiment Station.

---

#### Some Clover Observations

Last summer after returning to my home for vacation, I found opportunities while assisting in farm work and traveling over the country to some extent, to make some observations. Among other things noticed was the small crop of clover hay harvested and the discouraging outlook for a fair crop next summer. Being interested in ascertaining the cause of this I made it a point to visit several farms and learn the facts in regard to time of sowing the seed, what success they had been having and any other facts which might prove of value. Altogether, I visited eleven farms besides making inquiries of some farmers whom I met at different times.

The majority of farmers in our vicinity (Greene county) follow a three-year rotation of corn, wheat and clover. Timothy is sown with the wheat in the fall to insure a stand of grass and clover, and occasionally such a field is allowed to stand for two years. The first year, if the clover catch is good, little timothy will be noticed, while the second year the timothy predominates.

The farmers depend upon clover to such an extent to keep their land in

good mechanical condition and supply nitrogen for the corn crop, that failure to get good stands of clover for several years in succession means a considerably reduced corn yield and loss of fertility to the farm.

Of the eleven farms which I visited and at which I made inquiries, upon only two had been secured good stands of clover this spring, and in both instances, the seed had been sown as early in the spring as the snow left the ground. The rest of the farmers had postponed their seeding until spring had opened, and the newly started plants not being rooted deeply, perished in the dry weather in May and June. I found that a great many of the farmers had got into the habit of this late seeding. Past years have favored it, as the springs have nearly all been wet, and people have gained the idea that it was better to sow late. From what I have seen this season and last it seems unwise to trust to late sowing. Under right conditions the stand may be better than from early sowing, but the risk is much greater. If there is no freezing and thawing to cover the seed the hot sun dries off the top of the ground quickly and the shallow rooted plantlets suffer.

Another plan which seems to me exceptionally good and which I believe quite a few farmers practice, is sowing half of the seed early and the other half late. It doesn't take a very heavy seeding of clover to make a good stand, provided it all grows, and by sowing three quarts very early and the same amount later, one is almost assured of a stand. The manager of a farm of eight hundred acres southeast of Springfield, Ohio, told me that he had done this for ten years and never failed to secure a fair stand of clover. I did not get to see his newly sown clover this year, but his clover hay crop was one of the best in

the country. Surely this plan is worth the extra work of double sowing if results like the above can be secured.

Another farmer tells me he always harrows his ground with a light smoothing harrow before and after sowing his seed. He says it helps the wheat and that he always gets a good stand of clover. I am inclined to believe that if the sowing is done late this would be an excellent plan.

By the way, one of the best pieces of clover hay I saw this year was sown after the last cultivation of the corn the previous summer. Of course this was due to the wet weather of late summer. In instances where farmers cannot profitably raise wheat upon their land they might in many seasons get stands of clover by sowing in the corn. It is really surprising how much growth the clover will make in the mellow ground of the confield; and it seems to stand the winter remarkably well, too. It sends out lots of lateral roots and doesn't freeze out easily.

Before I close this article I wish to speak of Alsike clover for permanent pastures and for meadows in land too wet to grow red clover. One farmer showed me a pasture field that had been running eight years and it was certainly good pasturage. The Alsike seeds itself every year and thus lasts almost indefinitely. It will stand the winter well in low, wet land and starts early in the spring. It does not grow nearly as coarse as other clovers. Altogether Alsike clover does not receive the attention which its value deserves.

E. Kinney.

#### **A Factor in Agricultural Progress**

The Graduate School of Agriculture held under the auspices of the American Association of Agricultural Colleges and Experiment Stations, has success-

fully completed its second session and, in the opinion of those qualified to judge, has demonstrated its value as an important factor in agricultural progress. Probably the readers of the *Agricultural Student* already know that the idea of an agricultural summer school, good enough to attract men from all parts of the United States and that should at the same time include the good features of a conference, was due to a former member of the faculty of the Ohio State University, Professor Y. F. Hunt. It was largely owing to his efforts and those of President Thompson that the first session of the school, which was a decided success, was held at O. S. U. during the month of July, 1902.

After an interval of four years the second session assembled at the University of Illinois, July 2-28, 1906, and like its predecessor was "well worth while." Its success was undoubtedly largely due to the able guidance of the Dean, and Registrar, Dr. A. C. True, Director of the Office of Experiment Stations, U. S. D. A., acting in the former, and Professor E. Davenport, Dean of the College of Agriculture of the University of Illinois, in the later capacity. Those in attendance were nearly all connected with the Agricultural Experiment Stations, the instruction staff of the Colleges of Agriculture of the United States and Canada, or the United States Department of Agriculture, 34 states and territories being represented in the enrollment which reached a total of 131. Representatives from two foreign countries, India and Hungary, were also present.

The work of the school was carried on under three general topics, agronomy, zootechny and horticulture, including plant physiology and pathology. A course of twenty lectures and eight

seminars on plant and animal breeding was also given; these were so arranged as not to conflict with any other exercises and were well attended. In this course the lectures by Dean Davenport on Statistical Methods in the Study of Heredity were of especial value and interest. His criticisms of our present methods of study were constructive as well as destructive and were full of suggestions to the student of threminatology either in the plant or animal kingdom. Among others who contributed to the value and enjoyment of this course was Dr. A. J. Webber, who treated the subject of plant breeding. Interest was added to one of the seminars by a shipment of hybrid pineapples direct from experimental plantings in Florida, and to another by specimens of hybrid oats showing Mendalian characters.

Except to state that O. S. U. was ably represented on the faculty by Professor Plumb, further mention of courses can hardly be made without extending this account beyond limits; suffice it to say that the value of the lectures may be judged from the fact that they were generally followed by questions and discussion.

Among the general exercises that will long be remembered by those present was the conference on the organization of agricultural education and research, at which Dean E. Davenport, Director L. H. Bailey, President W. O. Thompson and Director W. H. Jordan were the principal speakers. The trip to Funk Bros. seed farm near Bloomington, Ill., should also be mentioned. The farms make a block of nearly 26,000 acres of "corn belt" land owned by the decendants of Isaac Funk, who certainly seem to be making a sincere and honest attempt to improve the quality of seed

corn, by careful selection and breeding. On one of these farms the Department of Agriculture is carrying on extensive experiments in selecting and crossing oats; this work is under the immediate supervision of Mr. Norton, who was present to explain his methods. The party, consisting of between sixty and seventy men, was entertained by the Funk Brothers in a way that left no doubt in the mind of any one as to the genuineness of the far famed "Western hospitality."

Early in the session the members of the school were brought together in a very plesant way at a reception given by Dean and Mrs. Davenport at their home on the campus. Sociability as well as education was also promoted by several informal evening meetings at which topics of interest were discussed. The courtesy and attention of the faculty of the College of Agriculture as well as that of other officers of the University of Illinois contributed much to the success of the school and the pleasure of its members.

In conclusion the writer feels that the Graduate Summer School of Agriculture has been thoroughly appreciated by those in attendance both in 1902 and 1906 and that it has been instrumental in bringing about more uniformity in methods of teaching and investigation and in the proper classification of agricultural knowledge. Its sessions will undoubtedly continue at intervals of two or three years, and although already good, will improve as time goes on. This improvement will probably be in the more careful balancing of the discussion of methods and subject matter, so that the instruction given may continue to be more and more suggestive and inspiring and of the kind that can be obtained from men but not from books.

J. A. Foord.



### Lime as a Fertilizer

In the writings of Pliney and Cato we have abundant evidence that lime was used for the improvement of the soil by the Romans over two thousand years ago.

Ruffin was one of the most prominent and reliable early writers in the United States to call attention to the use of lime for agricultural purposes. As early as 1812 and later in 1821, articles were contributed by him to the American Farmer and in 1832 appeared the first edition of his well known work on "Calcareous Manures." He gives evidence to the effect that much benefit has been derived from the use of calcium carbonate on the land.

The term "lime" is generally understood as quick or caustic lime (cao). When any form of carbonate of lime as limestone, oyster shells or shell marl is burned, carbonic acid is given off and

quick lime is formed. Lime is just as essential to plant growth as potash, nitrogen or phosphoric acid, but it is required in only small amounts. It is estimated that one-sixth of all rocks are limestones so it is evident that there is enough lime present to supply the needs of all plants; yet in sandy regions and in soils resulting from the decomposition of slate and other rocks poor in lime, the plants do not secure sufficient lime for their growth from the soil, but it must be supplied artificially.

Lime benefits the soil both chemically and physically. From a chemical standpoint, we find that if soluble phosphates are applied to soil deficient in lime and magnesia, the phosphoric acid will combine with the iron and alumina of the soil to form compounds which are not available to the plants. If, however, we supply the soil with sufficient lime and magnesia, this change is checked so that the plant is given an opportunity to



VETERINARY CLINIC, O. S. U.

utilize much of the phosphoric acid before it becomes unavailable to the plant.

Lime has the power of changing the physical properties of a clay soil and thereby making it more friable and more easily cultivated. This change in the physical properties of the soil allows the water to pass more freely through it. This helps the drainage of the land and in a measure prevents the standing of water in low places which is likely to occur when we have too much rainfall. By improving the drainage, we do away with the surface washing which carries off the fine particles of soil and of course that which is the richest. When lime is applied to sandy soils the particles of soil are compacted and the water is held near the surface of the soil and it does not dry out so rapidly. These changes are brought about by flocculation of the clay and organic particles. Experiments prove that one part of lime has the power to flocculate and clear ten thousand parts of a turbid liquid.

Lime has a beneficial effect in giving a favorable medium for the growth of nitrifying organisms and of the root tubercles on leguminous plants such as alfalfa and clover. Lime is used in some localities to prevent the clubfoot of certain root crops. Lime is said to destroy larvae, slugs and worms. It is claimed by some that lime favors the scab disease in potatoes, but experiments do not bear this out.

Excessive amounts of lime may prove injurious by hastening the decomposition of organic matter and thus rendering the soil more open so that it does not retain fertilizer and moisture as well as it did before.

Before the lime is added the soil should be tested to determine whether its presence is necessary or not. The best test is to apply lime to a portion of a plot on

which a crop is raised and withhold it from the other portion. But this takes much time, so that a quicker method is more expedient. An easy and simple way is to use the blue litmus test. The blue litmus paper is applied to moistened soil and if the soil is acid the color of the paper will be changed to a pink or reddish hue. This shows a lack of lime.

Lime in the form of marl and wood ashes can be applied in springtime, but caustic or slacked lime should be applied in the fall. This then changes gradually into carbonate of lime and is not caustic. If caustic lime is applied in the spring it may act too strongly and injure the growth of plants. However, this lasts but a short time as the carbonic acid in the soil soon changes the caustic lime into carbonate of lime.

Wood ashes which we often see applied to the soil contains potash but serves to loosen stiff soils and performs valuable service as a chemical reagent. This is due to the large proportion of lime contained in ashes—about 35 per cent. of which is in the best form it can be used. A ton of wood ashes contains about 120 pounds of potash and 700 pounds of lime.

Lime gives the best results when applied in small quantities at frequent intervals. It should be put on the surface of the soil as it has a natural tendency to go down. It should be applied in its caustic or quick state as it then has the most power in producing chemical and physical changes in the soil. For this reason lime should be slacked by means of water and should be at once harrowed in before it loses any of its active principles. Recently lime has been put on the market in a powdered caustic state so that it can be applied to the land with a grain drill or lime spreader and thus be put in the soil while it is in active state. By drilling or spreading the lime it is



much better and more evenly distributed than with a shovel.

Experiments conducted by the Rhode Island Experiment Station have shown that the following plants are helped by lime: Lettuce, beets, celery, onions, parsnips, cauliflower, cabbage, cucumbers, asparagus, tobacco, peanuts, sorghum, alfalfa, clover, barley, wheat, oats, timothy, Kentucky blue grass. Those injured by lime are watermelon, blue lupine and sheep sorrel. Those indifferent to the effects of lime are: Millet, rye, potatoes, carrots, red top grass and corn. However, corn has shown an increased yield when lime was added to the soil.

F. D. Heckathorn.

### The Morgan Horse

Recognizing the importance of the present revival of interest in Morgan horses, the Department of Animal Husbandry has recently added to its stud a two-year-old Morgan stallion. This horse (Lambert G) is typical of the most approved Morgan type and represents the best of Morgan breeding. He is a golden chestnut with white marks and was bred by E. D. Hinds & Son, Fowler, Vermont.

His sire, Frank Allen, is in every sense a modern Morgan, standing full sixteen hands; weighing 1200 pounds and possessing the finish, style and action demanded in a harness horse. He has defeated in Vermont shows, Knox Morgan, the St. Louis champion, and was recently made champion in a class of fourteen horses of standard hackney and coach breeding.

Frank Allen has been approved and is used in the Morgan stud establishment by the United States Department of Agriculture in connection with the Vermont Experiment Station. He is somewhat inbred to Ethan Allen, being himself a

great grandson and his dam by Aristos by Daniel Lambert, son of Ethan Allen.

The dam of Lambert G is one of the few surviving daughters of Daniel Lambert; second dam by DeLong's Ethan Allen; third dam by Black Hawk, making this colt intensely Lambert bred. His dam was strongly favored by the Government Purchasing Board but Mr. Hinds refused to sell.

This colt may be seen by calling on the attendant at the University farm.

### Experimental Research

S. B. STOWE.

The growth of our agricultural colleges and experiment stations has been marvelous. Each year new ideas are adopted by agriculturists which makes their methods of farming more profitable and enjoyable. It is for the farmer that sciences are being ransacked; labor and learning are laying their stores at his feet. Science in turn has been enriched and enlarged by the results of experimental research. The experiment stations of the country have made wonderful expansion and are centers of scientific thought and demonstration. In the great agricultural changes that have taken place during the last quarter of a century it must be conceded that the agricultural experiment stations have played a most important part by their application of their science to the needs of the farming world.

The manner in which their results have been given to the farmer is the keynote of their popularity. They do not obtain knowledge but are disseminating it far and near wherever the farmer is willing to receive or ask for it. In fact they are required by law to publish at least four bulletins annually. This prevents the tendency of a station from becoming merely a laboratory for scientific research; farmers reviewing and studying



their publications are set to thinking and then they begin to ask questions which must bring the experimentalist to the farmer's view of the problem. Speaking with Mr. Baldwin of our own station he said it was surprising how many questions farmers would think of and ask them during the winter months. It certainly is gratifying to all agriculture students to know that farmers are thus interested and recognize the value of the station's advice.

Before attempting to draw any conclusions as to how much importance station reports are to us, we will make a short study of the history of the experiment idea. It will be well to know something about what they are doing today. By so doing we can better appreciate the vastness and worth of their records.

The first experiment station was located at Rothamsted, England; it was founded by Sir Jno. Laws, whose first partner was Gilbert. Today the records of this station furnish most valuable information as to continuous cropping of ground. But it was in Germany that the idea was pushed with most vigor. The real work began at Leipzig in the year 1851. They were most fortunate in having secured government aid and today the Germans have stations scattered throughout the empire; the work of these shows the characteristic thoroughness of that nation.

However, the energetic American was not to be left behind, so at Middletown, Conn., in the year 1875, the first station was founded by Prof. Atwater. The results obtained at this station are considered today as authentic and furnish further example of the thoroughness with which an experiment is conducted.

In 1887 congress provided for the establishment of a station in each state and territory of United States. A certain amount was given for this and now an

appropriation is furnished every year. This was only the beginning of an institution that had risen everywhere to educate the farmers. Each state in the union has a well equipped farm and laboratories for research work. Over a thousand trained scientists are grappling with problems, the most of which will be solved for us sooner or later.

The work is varied, indeed it is almost manifold. There is scarcely a question that has not been dealt with by them. Truths have brought to light that have added thousands to the farmer's income, and the work grows larger every day.

There are thirty-six stations investigating soils, their geology, physics, chemistry and conducting various tests; thirty-three are analyzing fertilizers and conducting field tests with the same; forty-seven are investigating composition of feeding stuffs and carrying on feeding experiments; twenty-nine are studying dairying problems. Chemical departments are found at fifty-two stations; botanical research is in progress at forty-seven; horticultural departments exist at fifty-three; entomological questions investigated at thirty-six, and twenty-four have veterinary departments that are making careful studies of animal diseases. We cannot begin to comprehend what this means. But what is most pleasing we can begin a systematic research for ourselves that will yield great profit.

In a way we are unfortunate in that our station is separate from our college. This is not true in most cases throughout the country, and the station does much in moulding the lives of students; they come closely in touch with and carry back to their farms much that tends to make the farm not only the most desirable but the preferred place for the farmer's son. We do not have this opportunity so we must make the best of what

we have and adopt some means that will bring the station closer to us. They can assist us in almost any phase of agriculture that we may undertake; then it follows that we must begin at the earliest opportunity to study station reports. It is a difficult task to read a bulletin and interpret the author's conclusions correctly; or to know that the conclusions agree and bear out actual results. It must be done if we are to appreciate our station. The educational value of research work for ourselves will be great and it will be one of the most advantageous ways that we can continue our education on the farm.

We can begin it now and it is hoped that articles will be prepared for the Student upon such questions as are important to the individual. These may contain a summary of the results upon certain questions obtained by several stations. Such work will add to the enjoyment of our scientific studies, because the results of carefully planned experiments will be forced home.

---

#### **Dealing in Futures on Produce Exchanges**

The question of dealing in futures is one that has been intimately associated with the development of market conditions, and though the subject as presented to us has been in existence less than three decades, in that short time its scope has been extended, its purpose clearly defined and laws formed for its minutest regulation, so that now the machine exists as a definite organization. Let us look to its origin and development, its extent, its method of doing business, its effect on market prices and the general light in which it is regarded.

Our primitive ancestor was self-supporting; he sowed, reaped, manufactured and lived unto himself. But his indus-

try grew; he produced more than he needed, so he exchanged with his neighbor. Their exchanges soon became numerous, too numerous, indeed, for individual attention and another party, the trader, was called upon to aid in the exchange movements. Trade, however, was soon centralized and the barterer and peddler soon gave way to large retail dealers, a part of the latter being in turn replaced by wholesale houses they assuming the risk of extra products, while the retailer's sole duty was to care for his trade.

But soon industrial and commercial expansion so enlarged business, one part of the producing world became so closely connected with every other part that the merchant, instead of having to watch only the local trend of values was forced to compete in a worldwide market. His business was to handle and store his goods. He could not do this satisfactorily and keep a watchful eye on worldwide conditions. Another party was needed, one to assume the larger risk of holding, and he is the speculator who stands ready to supply the wholesale merchant with goods.

But the most important step is yet to be made. Americans are gifted with wonderful foresight and make their plans far ahead. The miller, for instance, must be assured that he will have wheat to grind the year round and desires to buy for future delivery. The speculator was his medium and stood ready to furnish him grain at any time in the year. This, then, is dealing in "futures"—nothing more nor less than a contract to deliver certain goods at a certain time in the future at a specified price. Thus the system seems to be naturally developed and is not, as many suppose, a man-made institution.

The speculators then constitute a separate class and for the transaction of

their business trade centers are organized, chief of which in this country are the Chicago Board of Trade and the New York Produce Exchange. Their declared purpose is "to inculcate just and equitable principles in trade, to establish and maintain uniformity in commercial usage, to acquire, preserve and disseminate valuable business information." They are organized under charters of corporation or listed under general law. Some exchanges trade only in one specific product as cotton, coffee, etc., but our attention is centered chiefly on Chicago where wheat and corn are dealt in.

At these centers the business of dealing in "futures" is carried to its extreme. Members of the Board come together at certain times in the day when there is offered before and among them produce in different kinds and amounts. To illustrate their methods let us say that we are on the floor in January. A offers for sale ten thousand bushels of wheat which is bought by B at 70 cents per bushel May delivery, buyer's option. That is, the buyer has the privilege of calling delivery any day in May when the market is to him most favorable. But how does the buyer know how much he can give for wheat five months in the future? Therein lies the element of speculation. There is a possibility of making a profit and one also, of losing. But that buyer is not proceeding blindly. His telegraph connects him with all parts of the world. His agents are at these various points and being trained in their business, their predictions of future prices are reasonably certain. Relying on their predictions and on his own almost infallible judgment he assumes the risk.

So far so good. The intention of buyer and seller may have been perfectly legitimate. One had wheat to

sell, the other wanted to buy. But wait. The wheat in question is not in the seller's hands. Instead he holds simply a warehouse receipt issued to him as guarantee that upon demand that much wheat would be delivered him. And the system of grading grain now in vogue makes it certain just what quality his product is. The buyer is now possessor of this receipt. Either from the fact that some uncertainty forces him to "cover" or because he sees a chance for a profitable change he offers this wheat for sale. C now comes forward and buys. He is not a producer; he is not a miller; he has no connection with the wheat market other than his hope of a possible gain. He buys the wheat for May delivery, seller's option, 75 cents per bushel. Will A deliver to B and B to C at the specified time? No. B's profit is already certain. On any day in May that he chooses to name, ten thousand bushels of wheat at 70 cents are to be delivered to him by A and on the same date he is to turn a like amount over to C at 75 cents. However the market goes he will make \$500. Now A would as soon deliver to C as to B, the transfer is made, B pockets his \$500 and is free for new ventures. There might have been twenty men as handlers of this same amount of wheat between A and B. If there had been all receipts at the close of the day would have been sent to the clearing house and differences settled there. Twenty sales may have been transacted, 20,000 bushels of wheat sold, and never one delivered.

But this is not all. When A became a seller he may not have possessed the wheat but hoped to buy only at time of delivery. To buy at a price lower than his selling price is his only hope of gain. Therefore he becomes a "bear," that is, it is to his interest to force the price of wheat down. To accomplish this result



he will resort to every means within his power, legitimate or illegitimate. He will encourage a large sale of wheat at this time. He will scatter false reports as to crop conditions. He will institute "wash sales," that is, by an agreement with his brokers they, on the floor of the exchange, will buy and sell at a very low price. The sales are purely fictitious, but they stand and are published as the day's quotations and their influence on the market price is often telling.

It is at such a time that that destructive move in the world's market known as a "corner" is made. A syndicate with large resources buys plentifully of short sellers, the latter usually being anxious to sell on a falling market. The syndicate buys everything in sight and the short sellers soon find to their sorrow that they have oversold the market; that they will be able to get no wheat for their deliveries. The syndicate now has them "on the hip." An oversold market creates a demand and the price rises. The syndicate refuses to sell and the price goes still higher. At the proper time they let go, are made millionaires, while hundreds of short sellers are hopelessly ruined. But, you say, "does not this rising market react to the benefit of the producer?" Usually he is but little benefited for the simple reason that the majority of the wheat has left the farmer's hands and is held by the speculator. A few years ago when Joseph Leiter of Chicago so skillfully manipulated the wheat market as to cause a rise from 88 cents to \$1.50 per bushel in ten days, but little wheat was held by the farmers. Those who did have wheat on hand profited hugely by the venture, but their number was so small as to preclude mention. A successful corner, however, is seldom created. It requires great resources and an unlimited amount of nerve to carry it through.

Such, then, are the facts as we see them. Now the question arises what effect does this system so extensively carried on, so wisely managed, have upon prices? In the illustration noted a few moments ago we show that with an initial amount of 10,000 bushels it completed its round with 200,000 bushels registered on the exchange books. Now if the total amount of wheat in the country were suddenly doubled no one would argue but that it would have an immediate and telling effect upon prices. What then must be the effects of this creation of vast amounts of fictitious grain? Records show that each year there is offered and sold on our exchanges an amount of wheat ninety times greater than is actually produced. Its effect can but be felt and the producer is the loser.

In addition to this inevitable tendency we have the ever-present depressing influence of the "bear." You will say there are also "bulls" who are equally interested in a rising market. True, but their number and strength is quite inadequate to counteract the depression. When B purchased from A in our illustration, he was for the time being a "bull" and was interested in a rise. But as soon as he sold to C he in turn became a "bear" and united with A to depress prices, the two being opposed only by C. Every large miller or warehouse dealer having large holdings and who should seemingly be interested in a rise has already "hedged" and must be counted with the "bears." They care not for the value of the product, they are interested in a fall in price. This very fact that prices are depressed and the producer's share, which, heaven knows, is already small enough, is made still smaller, should condemn the system in the minds of all fair-minded people.

But little headway has been made thus far in legally regulating the methods of exchanges. No one wishes them entirely suppressed, for while their evils are many their benefits are certain. It is only particular phases of the modern management that need control. The Hatch and Washburn bills of 1892 introduced into either house failed to pass. A modification of these bills was again introduced in 1894, but this, to our knowledge did not pass. The intention of these bills was to suppress short selling by means of a prohibitive tax. The Supreme Court holds that "futures" when delivery is certain is perfectly legitimate, but that when a purely speculative agent is introduced who never intends to receive or deliver his sales, who, indeed, may never have seen a bushel of wheat, such transaction is null and void and should be condemned. The difficulty is to prevent it. The rules of every exchange state that every option taken *may* be called upon for delivery, but the fact that 49 out of every 50 transactions are never delivered militates against the statement. Messrs. Brown of Toledo say that when they buy or sell options they never think of delivering or receiving the goods. This is the root of the whole evil and if these reckless speculators could be kept off the floor of exchanges and only those allowed who have wheat to sell or reasons for buying, an extremely objectionable feature would be eliminated. It has been suggested as a remedy to raise moral standards of trusty members so that they would frown upon such sales—a possible but a very improbable remedy. To raise the moral standard of a group of speculators in the face of such temptation is a task beyond hope of accomplishment.

It has been said that dealing in "futures" is nothing but fashionable gamb-

ling. Professor Hadley made a nice distinction when he said that the difference was one of purpose and intent. When a speculator by a system outlined has made a careful study of future conditions and honestly decides what he can do, his investment cannot be classed as gambling. True there is the element of chance, but this can be found in any venture. On the other hand when one entirely ignorant of crop or market conditions essays to invest, he relies solely on chance and is nothing but a common gambler. The tricks he will stoop to to win are of the lowest and he is no better than the poker freak with his sleeve full of aces. Present rules require but a bonus of 10 per cent. to invest. Thus with \$300 one can buy to the extent of \$3000. He can lose but \$300. He may win several times that amount.

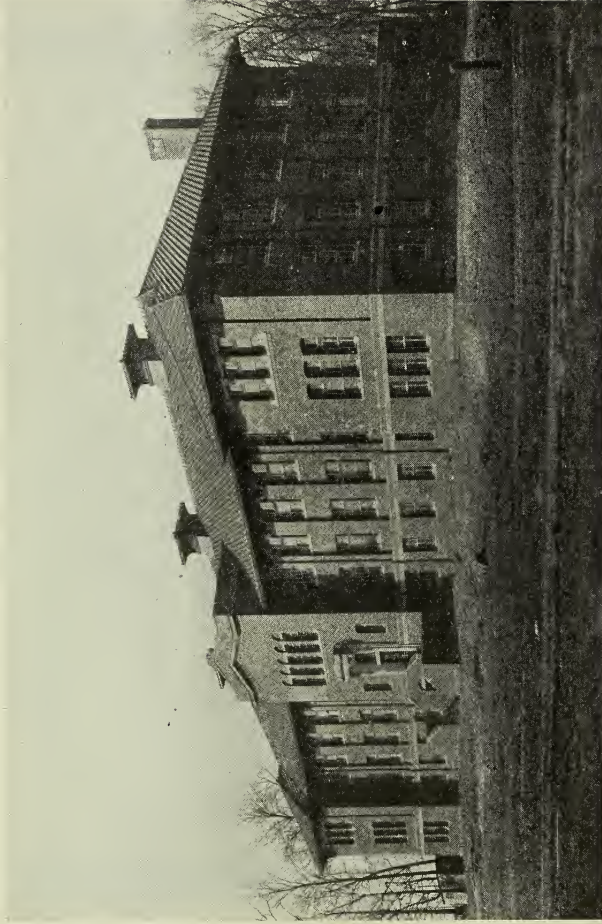
Certain it is that the moral side is not of the best. Visit the Board of Trade in Chicago. Gathered in the "pit" is a crowded mass of eager speculators, some with the air of perfect confidence, caring not seemingly whether they win or lose. Others, however, have their all invested and if they lose, bankruptcy and shame are certain. As we watched one young man in particular attracted our attention. He was careworn and restless, seemingly in great anxiety. Clearly he was only a beginner. Finally at a nod of his head a contract was made. Nervously he seized his pencil and began to figure. As he came out we heard him remark to a friend, "I made a thousand then." Another look at his exhausted, limpid figure led us to exclaim that his booty was dearly bought.

H. C. RAMSOWER.

---

#### Country Butter

The so-called country butter seems to be loosing out very rapidly in the cities, being replaced by the creamery butter



NEW MINING AND CERAMICS BUILDING—COMPLETED 1906

O. S. U. is said to have the best Ceramics School in the U. S.



with those people who desire the better grade, while those who cannot afford to pay the high prices, substitute oleomargarine or renovated butter.

What is the reason for this? Is it because the farmers' wives cannot make good butter, for the want of better facilities, or is it ignorance or carelessness? In answering this I am inclined to say that all three are factors which affect the kind of country butter put upon the market.

I will admit at the outset that the farmers' facilities for making butter are very meager; however, that is not so much against them as it might at first seem, because they do not need as complete an outfit as their competitor, the creamery. On the other hand they have an advantage over the latter, in, that they always have the fresh product as it comes from the cow. The same kind of milk from day to day means much in their favor when trying to produce a good product from it.

In a creamery the milk received is much different. In some instances where cream is taken in it is graded, the better grade receiving the higher price, but as a rule the kinds received are put altogether, ripened and churned. This milk comes from all sources, some is fairly clean and of good quality, some is dirty, or even sour. This is where "an ounce of prevention is better than a pound of cure," seems to be true.

If the creamery receives such milk how is it able to make a better butter than the farmer's wife? I will say at the beginning that it is not because of the kind of milk it receives, but the way it handles and treats the milk after being received. At a creamery the milk is separated, making a thick cream, then pasteurized, which is not necessary if the milk is not contaminated with some undesirable bacteria. Afterwards a good starter containing bacteria that pro-

duces a desirable flavor in the cream is added. This flavor is also imparted to the butter. As flavor and quality are the two most important things looked for in good butter it is very essential that they be obtained.

The butter maker in a first class creamery in order to make the best butter must be skillful, accurate and careful. He must make a uniform product of good quality. This is found to be the case in most creameries.

It seems so far that country butter is a black sheep, but let us meditate for a little while upon the methods pursued and the results obtained and see what the trouble is and if possible a remedy for the same may be offered.

On some farms country butter is made which equals even the extra fine creamery butter and sells at as high a price, but the amount is very small. It is found in most instances that where this best grade of butter is made, the hand separator has been used and even creamery methods introduced. That is they use a starter. However, on most farms the old-fashioned ways of making butter are adhered to, viz., by separating the cream from the milk serum by the gravity method, putting the milk in shallow pans or crocks, keeping in a milk house or in a cellar, built especially for it, while in the same room potatoes, cabbage, turnips or what-not are kept. By this method a very thin cream is obtained, never over 20 per cent. fat and often less, usually of several days standing, sometimes bearing a horny, cowy, greasy or bitter flavor, all due to the unsanitary conditions to which the milk or cream has been subjected. This flavor is imparted to the butter. The cream is churned at various temperatures and the butter, after the churning is completed, treated in a half-hearted-don't-care fashion, little attention being given to the texture or quality of butter. Salt

is not uniformly distributed or dissolved and even small pockets of buttermilk are left in the butter. As a result, the butter is characterized by its lack of uniformity from week to week. The keeping quality is poor, quickly becoming rancid. Some is cheesy, saltless or scalded, while some is of much better grade and would easily find a ready market if the people could depend upon it. As a matter of fact, so little of this better grade get to the market before it gets a little off that most of the country butter received in the large cities goes direct to the renovating factories to be reworked in such a way that the dirty water, buttermilk and casein which it contains can be removed and the oil which is left is recrystallized by letting the oil drop on water, after which color and salt are added to make it the desired uniform product. It is then worked in a churn with skim-milk.

The cause of so much of this poor country butter seems to be due very largely to carelessness and ignorance, along with the meager facilities with which the farmers' wives have to work. As a remedy, I would suggest that the people enlighten themselves upon milk and its products, with special reference to sanitary conditions, i. e., take greater care to keep their milk clean and pure as possible. In trying to improve on the quality of milk, there are two things to bear in mind, viz., the bacterial and odor absorbent property. The milk as soon as drawn from the udder of the cow should be removed to a room where the atmosphere is not alive with undesirable bacteria and offensive odors, and be separated at once. In this case the cream should be treated thus as soon as separated. The most desirable temperature to cool the cream is about 50 degrees F. At this temperature it has been found that bac-

teria multiply only five-fold in twenty-four hours, while at a temperature of 20 degrees, 750-fold. It is advisable in most cases to make the cream at least 30 per cent. If the utensils used are clean as they should be and sanitation is found among the herd, all animals being healthy, receiving proper feed, kept clean and in a well ventilated and cleanly-kept stable, there will be, without the least doubt, a good quality of milk produced. The farmer who produces a good quality of milk, finds it unnecessary to pasteurize in order to be able to control the flavor desired to be imparted in the butter from the cream. As a rule, it is advisable to use a starter, although it may not be essential.

With these conditions at hand, the product turned out will be more or less modified by the workmanship, although not to the extent that it would be if the product was of inferior quality. The cream should be permitted to ripen to the proper extent. A 30 per cent. cream to about 65 per cent. acid. It should not be churned at too high a temperature, usually from 56 to 58 degrees F. After the butter has come, the grain should be about as large as a kernel of corn; this, however, is not absolute, but varies. The butter should be washed in good clean water after the buttermilk has been drawn off. The water should be only two or three degrees warmer than the temperature at which the butter was churned. The salt should be added according to the market. The butter should be worked until it is wavy and not full of little pockets containing water or buttermilk. Lastly, it should be put up in neat prints or rolls.

This kind of butter would have, then, the uniform quality and flavor, as well as the other essentials necessary, in order to find a ready market and prevent its being sent to the renovating factories to be made palatable. If this

kind of butter was placed upon the market instead of the kind that is found, the commission men of our cities would cease to be so willing to converse readily about creamery butter and instead of abhorring country butter, they would talk about it with pleasure.

W. L. C.

#### **Horticulture and Forestry Club**

A few students interested in horticulture and forestry met in the Horticultural Hall of the University on Friday evening, September 28, to form a society for the purpose of promoting greater interest in horticultural and forestry work among the students and faculty of the University. A constitution and by-laws were adopted and the following officers elected: President, M. E. Corotis; Vice President, O. J. B. Smith; Secretary and treasurer, H. C. Thompson. The society expects to meet on the first and third Mondays of each month at 6:30 p. m.

#### **Townsend Reception**

On October 5 the Townsend Literary Society held their annual reception in Townsend Hall for the Freshmen. About one hundred and fifty people were present to listen to a very interesting program, enjoy games and partake of the much relished refreshments. Very good orchestra music was furnished during the greater part of the evening. The president, Mr. Ritchie, delivered an address of welcome that held the good attention of all. After this followed the short addresses of Professor Ford and Professor Graham.

#### **Football Gossip**

"Our football team has got all kinds of steam," is sung and stated by more people and with greater emphasis than ever before. The first game as usual

was played with Otterbein, resulted in a score of 41-0, the 0 being in Otterbein's favor. The game with Muskingdom ended with only 16-0 to O. S. U.'s favor, yet the Scarlet and Grey boys redeemed themselves when they piled up 52 against Wittenberg's 0, thus making a point for each week of the year.

The game with Michigan has caused more real enjoyable gossip than anything that has happened at the athletic field for many years. Michigan's strong team failed to cross Ohio's goal line, however they scored 6 points on a place kick and a safety.

When a person stops a moment to consider that Michigan's team averaged eighteen pounds more to the man than State's, and that Yost is really coaching his pets again this year, he will wonder why we were not defeated worse than we were.

Is it Hernstein, our coach, or is it the good material in the team that caused the team to take such a stand? Everyone is willing to admit that both factors are responsible. Yet we are apt to overlook one of the main essentials in a game of this kind, namely that famous rooting, which was said to be the best our Ra! Ra! boys have ever put up. The rooting was said to be more effective and better directed than was ever heard at O. S. U. The spirit shown for football this season has surpassed anything in preceding years. There seems to be a general mutual feeling between coach, captain, players, students and faculty this year. This was no better indicated than the night before the Michigan game when the 2000 rooters met in front of the main building and sang college songs, gave new yells, listened to speeches from Hernstein, Hoyer and others, and finally hit the climax by building a bonfire of a great pile of store boxes.

Let the good work go on and the State championship is within our grasp.



Union Stock Yards, Chicago, Ill.,  
October, 6, 1906.

To the Editor: The following letters, one from Mr. Armour, announcing his intention of putting up annually \$5,000.00 to be distributed at this exposition in twenty agricultural college scholarships, and the acceptance of our president, Mr. Spoor, of the proposition is a matter of great interest to agriculture and live stock throughout the entire country, and I sincerely trust that you will give every prominence to this most generous offer of Mr. Armour.

W. E. Skinner,  
General Manager.

October 5, 1906.

Mr. John A. Spoor, President International Live Stock Exposition, Chicago:

Dear Sir: We all recognize and appreciate the work done by our agricultural colleges in advancing the cause of agricultural education in this country through the character and extent of their exhibits of live stock and field products at the International Show.

With a view of stimulating their efforts to give an increased evidence to our farmers of the great value of their work, I hereby offer to you the sum of five thousand dollars to be distributed annually at the International Exposition in twenty agricultural scholarships to be competed for by the State Agricultural Colleges at your exposition.

The competition for the scholarships to be based upon animal and grain exhibits from the several colleges and such other forms of agricultural student competition as may be recognized or established by the International Live Stock Exposition. The details governing the competition to be determined by the management if the said exposition and to be known as the "J. Ogden Armour scholarships."

It is my desire that the recipients of the scholarships should be limited to boys whose parents are unable to give them the advantage of an agricultural education. Yours truly,

J. Ogden Armour.

Union Stock Yards, Chicago, Ill.,  
October 6, 1906.

Dear Mr. Armour: On behalf of the directors of the International Live Stock Exposition Association, as well as for myself, I beg to acknowledge your favor of the 5th inst. and to accept with many thanks your most generous offer of five thousand dollars to be distributed annually at the International Live Stock Exposition in twenty agricultural college scholarships to be named the "J. Ogden Armour Scholarships."

This endorsement by you of agricultural education is most timely and worthy, and the safeguarding of the scholarships so that they may only be given to boys who might not otherwise have the advantage of a college education is a wise provision. The International Live Stock Exposition, founded for the advancement of agriculture and the improvement of live stock in being made the medium through which your liberal endowment is to be distributed, and I beg to assure you that every assistance in the power of this association will be rendered to carry out the provision of your scholarship awards, so that the greatest possible good may be derived therefrom.

Please accept our renewed thanks with full appreciation of the generous spirit and motive that has prompted the gift.

Very truly yours,

J. A. Spoor, President.

Mr. J. Ogden Armour,

Union Stock Yards, Chicago, Ill.

Chicago, Ill., Oct. 10, 1906.

Mr. Homer C. Price, Dean, Agricultural College of Ohio, Columbus, Ohio:

My Dear Sir: This is surely a great year for the agricultural colleges at this exposition, the beginning of greater things for the colleges and their students, present and prospective.

The generosity of Mr. J. Ogden Armour in donating \$500.00 annually for scholarships in line with enclosed information; the annual Clay, Robinson & Company \$1000.00 specials for college stock; the Rosenbaum Bros. & Co. specials of \$1000.00 annually to arouse

state pride; the McLaughlin Bros. \$300.00 specials for the boys in the students judging contests and the Live Stock World \$300.00 special offer to encourage live stock reportorial work are incidents worthy of the greatest exploitation through every medium at your command. Yours very sincerely,  
A. E. Skinner.

### Book Reviews

**Modern Methods of Testing Milk and Milk Products.**—A handbook prepared for the use of dairy students, butter makers, cheese makers, producers of milk operators of condenseries, managers of milk shipping stations, milk inspectors, physicians, etc. By Lucious L. Van Slyke, Chemist of the New York Agricultural Experiment Station.

This book should be in the hands of every dairyman, teacher and student. It contains a comprehensive discussion of the chemistry of cow's milk, embodying

the most recently developed facts. The numerical data given are fresh and largely at first hand, representing American conditions, instead of being stale, miscellaneous data taken from European sources, so much of which has little application or value for American dairymen. Some errors that have been long incorporated in dairy literature on the composition of milk are here corrected. The publishers are aware that the author's long-continued study of the chemistry of milk has made him a recognized authority in this field, and has peculiarly fitted him to treat this subject in a satisfactory manner.

The various methods of testing milk and its products are brought up to date; they are presented in the most concise manner that is consistent with completeness, clearness and accuracy; irrelevant matter is omitted. The aim has been to include all necessary material and omit all that is unnecessary.

After the description of the details of each method, there follows a brief sum-



MISSIE'S DIAMOND

First prize in class at the Ohio State Fair, 1906. Reserve champion in 1904 at Louisiana Purchase Exposition, St. Louis. Bred and owned by D. R. Hanna, Ravenna, Ohio.

mary in short, sharp statements that stick in the mind and enable the student to grasp almost at a glance the essential steps to be followed, and the important precautions to be observed.

Considerable new matter is presented. The portion on "Methods of Testing and Scoring Butter, Cheese, Milk, etc.," is a feature that will commend itself to dairy teachers and inspectors. Several valuable tests, easy of execution, are given for the detection of renovated butter, or oleomargine, and of other adulterants of dairy products. Methods are given for the determination of fat in the milk powders which are recently coming into the market, and which are destined to be of great commercial importance to dairymen.

The chapter on the "Arithmetic of Milk and Milk Products" is another desirable feature of the book which will prove exceedingly helpful to every dairy teacher, student and worker. We believe that the general arrangement of the material in this book is one that will meet the approval of those who have occasion to use it most.

Fully illustrated, 5x7 inches. Substantially bound in cloth. Price, 75 cents. Orange Judd Co., 439-441 Lafayette street, New York.

---

**Dwarf Fruit Trees.**—By F. A. Waugh, Professor of Horticulture and Landscape Gardening, Massachusetts Agricultural College. Illustrated. 125 Pages, 5x7 inches. Cloth. Price Postpaid 50 Cents. Published by Orange Judd Company, New York.

Nothing more striking has occurred in the development of agricultural affairs during the last decade than the rise of the amateur spirit. There are

now thousand of people to whom farming and gardening is a pastime or a recreation. Many others, while still cultivating the soil for financial returns, confess that the money thus earned is the smallest reward of their labor. Everywhere there are village gardens, suburban home lots and private estates. The very type and model of all the operations on all these places is to be found in the garden of dwarf fruit trees. The suburban lot which would be crowded with two or three common Baldwin apple trees can easily accommodate forty or fifty dwarf trees bearing apples, pears, plums, peaches, nectarines, and the whole list of hardy fruits.

These dwarf trees have a great advantage further in the fact that they come into bearing very early. One has to wait ten years for fruit from a common apple tree, while a dwarf tree of the same variety will bear in three years. The fruit is also of the highest quality. Even in strictly commercial operations the dwarf trees have their plan. They make the best of "fillers" for temporary planting between permanent standard trees in a new orchard, and there are some commercial orchards of dwarf trees, particularly of pears, long and favorably known in America, as profit yielding enterprises.

All these advantages are enthusiastically set forth in Prof. Waugh's new book. What is more important the book also tells, in detail, how these advantages are to be secured. In clear and readable style the propagation of the trees is described, their planting, pruning, care and general management. The work as a whole is eminently practical and timely. It is fully and handsomely illustrated and substantially bound in cloth.



# BRADSHAW

THE  
STUDENT'S  
DRUGGIST



KING AVENUE,  
NEAR NEIL

## A. H. HARMON,

HIGH-GRADE  
MERCHANT  
TAILORING

POPULAR PRICES

GREAT  
SOUTHERN  
BUILDING,

COLUMBUS, O.

CITIZENS PHONE

4958



BERNARD W. PAYNE

MORTON McDONALD

## Payne=McDonald Hardware Company

1204 North High Street

Automatic Telephone 5746

DISCOUNT TO STUDENTS

## The Berlin Printing Company

PRINTING

OF EVERY DESCRIPTION

79-89 NORTH THIRD STREET

TELEPHONE  
CITIZENS . . . 6157



W. & W. Sewing Machines  
are used in the Domestic  
Science Department of the  
Agricultural College of  
Ohio.

# Smith's Academy of Dancing

GAY AND HIGH

Special Students Beginners Classes Friday  
Evening.

Private Lessons by Appointment Day or  
Evening.

---

Pupils can Enter at any Time

---

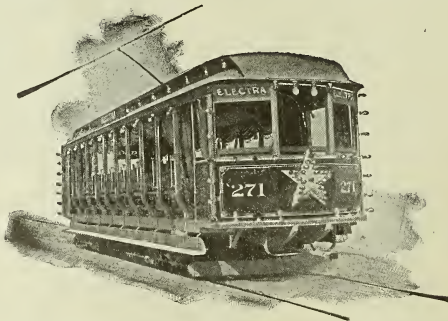
MAIN OFFICE, GAY AND HIGH.

BOTH PHONES

## THE COLUMBUS RAILWAY AND LIGHT CO.

**The Car Service** Cannot be excelled by any Street Railway in a city of like population. All lines center in the heart of the city and extend in all directions to the suburbs. The lowest rates of fare of any city in the United States. Trolley parties specially cared for by chartered cars.

OHIO STATE  
UNIVERSITY IS  
REACHED DIRECT  
BY EITHER  
HIGH STREET  
OR  
NEIL AVENUE  
LINES



THE LOWEST  
FARE IN  
THE COUNTRY.  
TRANSFERS  
TO ANY PART  
OF THE  
CITY

**Every State Institution,** Hospital, Cemetery, City Park, Hotel, Depot, Principal Business House, and all the various points of interest to be desired are reached or passed by cars of this Company. Operates and controls the lines to Westerville and Arlington. The latter are delightful suburban rides.

F. C. LONG, O. S. U. '03

A. W. KILER, O. S. U. '96

# LONG & KILER'S

Original Bookstore of O. S. U. and managed by University  
Graduates

We are Extensive Dealers in

## SECOND HAND BOOKS

which means a great saving to the student

LARGEST FOUNTAIN PEN DEALERS IN THE CITY

BEAUTIFUL LINE OF O. S. U. PINS

Removed from Main Building O. S. U.

ELEVENTH AVE. AND HIGH ST.

---

## ANNOUNCEMENT

Autumn, with her golden hues and mellow colorings from the paint pots of nature, is with us again.

We extend to our friends the season's greeting, and with it an earnest invitation to call to see the handsome Fall Woolens we have selected with great care from the productions of the best foreign and domestic mills.

WE'RE AT YOUR SERVICE, SIR!

Our Cutters and staff of Tailors are now ready for your order.

HIGH STREET TAILORS 166 N. High Street

THE   
ORR=

199-201 South High Street

Artistic

Highest honors at National  
Convention of 1906 over all  
competitors.

MARK OF



QUALITY

KIEFER  
STUDIO

Citizens Phone 3720

Photography

Special Rates to Students.

GROUP PICTURES  
A SPECIALTY

Our Advertisers are Reliable. Patronize them.



## Will You be the Judge ?

This advertisement offers you the chance to be the judge, the prosecuting attorney and the jury on a preparation that does work that must be done unless you are raising poultry to lose money.

Ninety-nine times in a hundred failure to make money from poultry can be traced directly to disease. Therefore, the first thing to do to increase one's earnings from poultry is to prevent disease, and if it gets ahead of you, to cure it quickly.

It is just in these particulars that

### Chloro-Naphtholeum Dip AND DISINFECTANT

gets away ahead of all the other remedies sold to poultry raisers. It prevents diseases from starting, because it destroys all germs, bacteria, and removes unsanitary conditions. The germs being killed cannot attack the poultry and cause such disease as Roup, Leukamia, Cholera, Gapes, etc.

CHLORO-NAPHTHOLEUM DIP also kills lice and pests, and being a scientific preparation, heals and cures quickly the different diseases of poultry when they have started.

Will you be the judge and jury on a trial gallon of CHLORO-NAPHTHOLEUM DIP and DISINFECTANT? We will ship it upon receipt of your name and address on thirty day's trial. If it does the work you send us \$1 50. If it doesn't, write us a letter and we will tell you where to return whatever has not been used.

### WEST DISINFECTING CO.

12 East 59th St.

New York.



## Chr. Hansen's DANISH

Butter Color

Cheese Color

Rennet Extract

Lactic Ferment

are acknowledged by all leading  
Dairy and Cheese authorities the

STANDARD OF THE WORLD

Chr. Hansen's Laboratory,

P. O. Box No. 1074 LITTLE FALLS, N. Y.

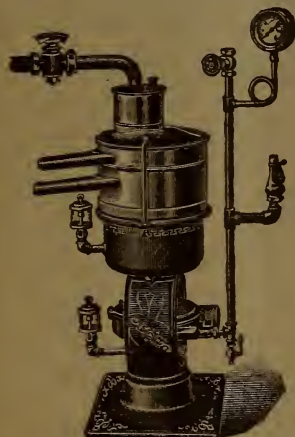
228 to 230  
North High Street



Popular Prices

We are complete outfitters of all plants for handling milk products. If you are in the dairy manufacturing business in any capacity and want to keep up with latest and best methods, or if you are thinking of going into it, the first thing to do is to get into communication with us. We are at your service in the planning, building and equipping of Creameries, Cheese Factories, Sanitary Milk Plants and Private Dairies. Our experience in this line is worth money to you, yet it costs you nothing but the asking.

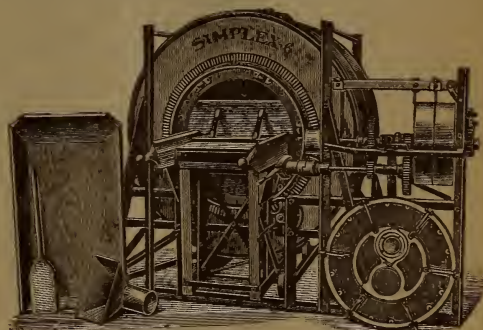
**CREAMERY PACKAGE MFG. CO.**  
182 TO 188 E. KINZIE ST.  
CHICAGO



**"SIMPLEX" Link-Blade Cream Separator.**

"Simplex" Link Blade Separators  
"Simplex" Regenerative Pasteurizers  
"Facile" Babcock Milk Testers  
"B & W" Improved Check Pump  
"Lapham" Brand Seamless Bandage

We manufacture and sell the most complete and up-to-date specialties for the handling of milk in any quantity, and for the manufacture of butter and cheese.



**"SIMPLEX" Combined Churn and Butter Worker.**

"Simplex" Combined Churn and Butter Workers  
"Simplex" Cream Ripeners  
"B & W" Double Surface Heater  
Steel Gang Cheese Presses and Hoops  
Hansen's Celebrated Danish Dairy Preparations

WRITE FOR OUR CATALOGUE AND PRICES

**D. H. BURRELL & CO.,**

**Little Falls, N. Y.**

# 25 Years of DE LAVAL CREAM SEPARATORS.

This is the record of the DE LAVAL machines, which is of itself a mountain of strength beside which the records of all would-be attempting cream separators are but mole-hills.

It means a feeling of confidence in the purchase of a cream separator to know that you are putting your money into the machine which was FIRST and which has LED in every single step of cream separator IMPROVEMENT, all imitating machines simply taking up such old features as expiring patents leave open to them.

It means something in putting your money into a cream separator to know that you are not only getting the machine which will DAILY give you the best results, but one of which there are already many thousands an average of TWENTY YEARS in use, while the average life of imitating machines is not over five years and most of the so-called "cheap" machines of today are not likely to last two years.

A De Laval catalogue, to be had for the asking, must convince you that De Laval machines are not only the best but actually the cheapest.

## The De Laval Separator Co.

Randolph and Canal Sts.  
CHICAGO

1213 Filbert Street  
PHILADELPHIA

9 and 11 Drumm Street  
SAN FRANCISCO

General Offices:

74 Cortland Street

NEW YORK

109-113 Youville Square  
MONTREAL

75 and 77 York Street  
TORONTO

14 and 16 Princess Street  
WINNIPEG